

LEAF RUST OF BLUEBERRY

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In recent years, blueberry production in Florida has increased dramatically. This is due to extensive selection and breeding of the rabbiteye (*Vaccinium ashei* Reade), and highbush (*V. corymbosum* L.) blueberries, which are common throughout the southeastern United States. Also, a steady increase in the fresh fruit market due to consumer demand has led to a fast expanding blueberry industry. The geographical distribution of *Vaccinium* and other Ericaceous plants is limited by their requirement for an acid, moist but well-drained soil. Blueberry plants thrive only on soils with low pH values ranging from 4.0 to 5.5 (2). Several fungal leaf spots occur on cultivated blueberry varieties, one of which is caused by the rust, *Pucciniastrum myrtilli* (Schum.) Arth.

PATHOGEN: *Pucciniastrum myrtilli* is heteroecious, producing the aecial stage on its alternate host, hemlock (*Tsuga* sp.), which is essentially absent from Florida (3). This rust fungus can survive mild winters in the uredial stage on its cultivated and native primary hosts, specifically, *Vaccinium ashei*, *V. corymbosum*, *Rhododendron chapmanii* A. Gray, *R. canescens* (Michx.) Sweet, *R. austrinum* (Small) Rehd, and *Lyonia ferruginea* (Walt.) Nutt. (1). *P. myrtilli* is not dependent on hemlock for survival.

Early spring infections can result in defoliation by early summer, causing berries to stunt, shrivel or drop, thereby reducing the yield (4). Further investigation is needed to determine the magnitude of the impact from this rust disease and other foliage pathogens on Florida blueberries.



Fig. 1 A) Lower leaf surface showing necrotic leaf spots and associated rust pustules. B) Corresponding necrotic lesions on upper leaf surface. C) Severe leaf spotting on container grown 'Sharpeblue' infected with leaf rust.

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Leaf rust, as the name implies, is confined to the leaves of susceptible blueberry varieties, most notably, early maturing 'Sharpeblue', which comprises about 95% of Florida's highbush plantings. 'Delight', a top yielding rabbiteye variety in Texas, produces poorly under Florida conditions, probably due to premature defoliation caused by a complex of foliage diseases including leaf rust. Although 'Sharpeblue' and 'Delight' are both susceptible to leaf rust, the disease hasn't been considered a major problem in blueberry production (Paul Lyrene, personal communication, IFAS, Fruit Crops Department).

SYMPTOMS: Early symptoms of this disease consist of light green chlorotic spots on upper leaf surfaces. Corresponding necrotic lesions are produced on lower leaf surfaces which turn a red to reddish-brown color as the disease progresses. Eventually, the light green chlorotic spots also develop the characteristic reddish-brown necrosis. Rust pustules bearing the infective urediospores of P. myrtilli are produced on the underside of infected blueberry leaves and are clearly visible within the margins of these discolored necrotic leaf spots (2). Rust lesions are usually more numerous on lower leaves of a plant where moist, disease-conducive conditions are most likely to occur. Late in the season, teliospores of the rust may be produced within the same lesions. In Florida, however, it is typical to see only the uredial stage of the rust.

CONTROL: Since the importance of leaf rust as a pathogen has not been clearly established in the Florida blueberry industry, there are no specific methods cited or chemicals registered for control of P. myrtilli (5). Several fungicides are, however, registered for control of other major leaf spot diseases which occur on blueberry (6). Difolatan is the only one likely to have any activity against leaf rust. Also, pruning and plant spacing to optimize air movement in the stand should help reduce disease incidence.

SURVEY AND DETECTION: The leaf spots caused by P. myrtilli are initially recognized by a chlorotic or light green spot on the upper surface of infected leaves. The underside of the leaf will produce a corresponding red or reddish-brown lesion in which the rust pustules are produced, and spots on the upper leaf surface will become necrotic. Sporulation of the rust is easily seen with the aid of a hand lens, and in mass, the urediospores are visible as dusty orange-yellow deposits within the reddened leaf spots.

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